Daily work with Coachman’s Digital Smile Design protocol

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Fig. 1a & b. Facial frontal photographs in the headrest, retracted (a) and smiling (b).

Fig. 2. Facial frontal photograph in the headrest, retracted.

Fig. 3. Measurements for the technician.

Fig. 4. DSD.

Fig. 5. Direct mock-up, created with a silicone key, without correction.

The Digital Smile Design (DSD) protocol developed by Dr Christian Coachman is an important part of daily work at our practice. It is an integral way of viewing the patient that clearly improves the quality of the treatment planning, as well as the functional and the aesthetic results.
An important aspect of the DSD concept is that the patient is shown what his or her smile will look like after treatment in an emotive presentation. In this manner, we can easily convince the patient to accept the proposed treatment plan and encourage him or her through the perfect, immediate facial integration of the mock-up.

The DSD is a multipurpose conceptual protocol described in great detail by Dr Coachman and available on his website; therefore, in this article, I will not present the DSD protocol, but will focus on my personal experiences with this concept. Based on my observations, I wish to suggest

Figs. 6a & b. Comparison before (a) and after (b), intra-oral.
Figs. 7a & b. Comparison before (a) and after (b), extra-oral.

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a new procedure for capturing the frontal photographs. In addition to general examination, choosing the initial photograph is essential, because the DSD process starts from this point.

**Case 2**

Fig. 8. Facial frontal photograph in the headrest, retracted with 8 mm bite increase, DSD.

Fig. 9. Initial situation.

Fig. 10. Direct mock-up in the upper and lower jaws, with bite increase, without correction.

**Case 3**

Fig. 11. Measurements for the technician, after preparation.

Fig. 12. Digital control of the indirect mock-up after preparation.

Fig. 13. Initial situation.

Fig. 14. Result of treatment in the upper jaw with crowns and bridges, and in the lower jaw after whitening and direct composite fillings.

**Steady head position**

First of all, it is necessary to observe how the patient speaks, smiles and interacts with his or her head. It is important to note the line joining both eyes. I often see that both eyes are not on the horizontal line. These parameters should be taken into consideration for future measurements. One needs to check the parameters again in the case of treatment for cranio-mandibular dysfunction.

I use the slit-lamp stand (used by ophthalmologists) to hold the patient’s head in the optimal 3-D position because it keeps the patient’s forehead and chin perfectly still. I have learnt that this procedure is more convenient for taking the patient’s measurements during the workflow (Figs. 1a & b).

I use frontal photographs for the mock-up for the treatment plan presentation, after preparation, for measurements for the dental technician, the digital bite impression, as well as the verification from mock-ups and all tests, including the final result.

In the following, I will present my practical work with the DSD concept in different cases without discussing the smile design process in detail. I can confirm that the digital workflow is very helpful in all steps and cases of aesthetic treatment, because it saves time and yields better results in horizontal/vertical plans without extensive corrections.
Case presentation

The four cases illustrate a new method of capturing frontal photographs.

The first case demonstrates the preparation of six IPS e-max crowns (Ivoclar Vivadent) on teeth #13–23 (Figs. 2–7). The second case presents the mock-up for the treatment plan presentation for a patient with cranio-mandibular dysfunction (Figs. 8–10). The third case presents full-arch restoration with Zircon/IPS e-max crowns in the upper jaw (Figs. 11–14). The last case shows the mock-up in a patient with chronic periodontitis (Figs. 15–19).

Conclusion

In this short article, I have presented a new method of capturing the frontal photographs used in the DSD protocol from Dr Coachman. These changes can help standardise the photographs captured in the various steps of the DSD process and can enhance treatment quality.

Case 4

Fig. 15, Facial frontal photograph in the headrest, retracted.
Fig. 16, Initial situation.
Fig. 17, Direct mock-up in the upper jaw, without correction.
Figs. 18a–c, Initial smile.
Figs. 19a–c, Mock-up smile.

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Dental technician: Sergei Müller

Case 4

Fig. 15
Fig. 16
Fig. 17
Fig. 18a
Fig. 18b
Fig. 18c
Fig. 19a
Fig. 19b
Fig. 19c

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